

## REMARKS

Support for the recitation respecting the recording material is found in page 10 line 7. Formula (II) is presented in the specification in page 10 line 10. The recitation respecting the integrity of the cited holograms is supported in page 3 line 17-19.

The claimed invention is directed to a method of using a recording material for a holographic volume storage media. The poly(meth)acrylate recording material contains a dye conforming to a recited formula and enables recording of at least three holograms at one specimen position without unacceptably diminishing, completely damaging or entirely overwriting the holograms already recorded in the material.

The claims stand rejected under 35 U.S.C. 103(a) as being unpatentable over either Bieringer et al '846, Havilstead '670, Ringsdorfer et al "Electrooptical effects of Azocontaining liquid crystalline copolymers"" Makromol. Chem., Vol 185, pp 1326-1335 (1984), Eich et al "Erasable Holograms in Polymeric Liquid Crystals" Makromol.Chem., Rapid Commun., Vol 8, pp 467-471 (1987), Berneth et al WO 98/51721, Haarer et al DE 4431823, or Stumpe et al DE 4339862 in view of Kawano et al. U.S. patent 6,452,890 and Colvin et al U.S. Patent 6,165,648.

Bieringer et al '846, does not disclose volume storage media. Moreover nothing in the document refers to storage of several holograms recorded at one specimen position.

Havilstead '670 fails to disclose the three or more holograms recorded at one specimen position that characterizes the present invention. Havilstead in column 20 lines 13-35 refers to that the laser 10 illuminates the **whole** surface of the film and that laser 18 illuminates only a **small** area on the film.

"Thus, as the spot illuminated by the second laser 18 may be quite small, a large number of holograms may be stored in the same film at the same time. The **position and size** of these holograms are defined purely by the overlay position by the two lasers."

Further, in accordance with Havilstead (column 20 line 31 et seq.):

"the size of the spots in this film is about 1 mm. Thus, all the information contained in the hologram is stored in the spot defined by the spot of laser 18. This means that a number of different holograms may easily be stored **in a single polymer film.**"

Nothing in this document refers to the storage of several holograms at **one and the same specimen position**.

Ringsdorfer et al. does not disclose volume storage media. Moreover nothing in the document refers to storage of several holograms recorded at one specimen position.

Eich et al. does not disclose volume storage media. Moreover nothing in the document refers to storage of several holograms recorded at one specimen position.

Berneth et al (WO 98/51721) does not disclose volume storage media. Moreover nothing in the document refers to storage of several holograms recorded at one specimen position.

Haarer et al (DE 4431823) does not disclose volume storage media. Moreover nothing in the document refers to storage of several holograms recorded at one specimen position.

Stumpe et al DE 4339862 does not describe recording material for holographic volume storage media and is thus irrelevant to the subject of the present invention. Nothing in this document refers to holographic volume storage media where several holograms are stored at one specimen position.

Kawano et al. (U.S. patent 6,452,890) disclosed volume holographic storage entailing a different type of holograms. More importantly system entails rewriting the data **without an erasing step** (column 4, lines 50-51). Accordingly new data is **overwritten** as another polarization hologram without erasing the previously stored data (col. 6 lines 49-56). This means that a previously stored hologram is erased by a subsequent hologram stored on the medium. In this connection see Kawano's objective (column 4 lines 37-43) that aims at the elimination of the erasing process between the recordings of two separate holograms. The referenced media does not describe the present invention that is characterized, *inter alia*, by enabling recording of at least three holograms at one specimen position without "unacceptably diminishing, completely damaging or entirely overwriting the holograms already recorded in said material".

Colvin et al U.S. (Patent 6,165,648) does not disclose the presently claimed poly(meth)acrylate recording material and the dye conforming the presently recited formula (II).

It is respectfully asserted that the none of the primary documents may be combined with either of the secondary ones in a manner describing the presently claimed invention and that the rejection sounding in obviousness is thus untenable. Reconsideration and withdrawal of the rejections are respectfully urged.

The claims stand further rejected under 35 U.S.C. 103(a) as being unpatentable over either Bieringer et al '846, Havilstead '670, Ringsdorfer et al "Electrooptical effects of Azocontaining liquid crystalline copolymers"" Makromol.Chem., Vol 185, pp 1326-1335 (1984), Eich et al "Erasable Holograms in Polymeric Liquid Crystals" Makromol.Chem., Rapid Commun., Vol 8, pp 467-471 (1987), Berneth et al WO 98/51721, Haarer et al DE 4431823, or Stumpe et al DE 4339862 in view of Kawano et al. U.S. patent 6,452,890 and Colvin et al U.S. Patent 6,165,648 and further in view of Savant et al '221 and, newly cited Ross U.S. patent 3,951,663.

Bieringer et al '846, Havilstead '670, Ringsdorfer et al, Eich et al, Berneth, Haarer et al , Stumpe et al, Kawano et al. and Colvin et al have been discussed above and their shortcomings in the present context were noted.

Savant that disclosed birefringent azo dye polymer erasable optical storage medium that is characterized (column 26 line 46 et seq.) in that:

"the data need not be erased before the track can be written again. In other words, the media has "overwrite" capability. In this respect time is saved during recording on previously written tracks (the extra disk revolution that is needed for erasure in conventional erasable recording is no longer required). The material of the present invention is similar to ordinary magnetic disks (floppies as well as Winchester-type hard disks) in terms of overwrite capability."

As such Savant's medium is quite different from the present invention that enables at least three holograms at one specimen position without "unacceptably diminishing, completely damaging or entirely overwriting the holograms already recorded in said material".

Ross disclosed volume phase holographic recording media that entail an alpha di-ketone. These do not describe the dye of the presently recited formula (II).

Applicants respectfully asserted that none of the primary documents may be combined with either of the secondary ones in a manner describing the presently

claimed invention and that the rejection sounding in obviousness is thus untenable. Reconsideration and withdrawal of the rejections are respectfully urged.

Believing the above represent a complete response to the Office Action and that the application is in condition for allowance, Applicants request the earliest issuance of an indication to this effect.

Respectfully submitted,

By \_\_\_\_\_

  
Aron Preis  
Attorney for Applicants  
Reg. No. 29,426

Bayer MaterialScience LLC  
100 Bayer Road  
Pittsburgh, Pennsylvania 15205-9741  
(412) 777-3814  
FACSIMILE PHONE NUMBER:  
(412) 777-3902  
lo/PREIS/ap294